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Thermostatic control system using a single-chip microcomputer and thermoelectric modules based on the Peltier effect

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Abstract

A flexible temperature-controlling system matched with the liquid Thermostatic control circuit is based on a single-chip microcomputer. Thermoelectric modules based on the Peltier effect are used for sample cooling and heating. The accuracy of the temperature maintenance is better than 0.1°C in a range of -20 to +70°C. The system is designed for NMR relaxometers but can be also used to control the temperatures of any volume-comparable objects (≈50 cm3).